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613 254 9222 P.01/03

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

*In re patent application of
David Robert Cameron Rolston et al*

Serial No. 09/773,246

Filed: February 1, 2001

For: METHOD AND APPARATUS FOR DISTRIBUTED SYNCHRONOUS CLOCKING

Customer No. 33361

Group Art Unit: 2666

Examiner: Melanie Jagannathan

Confirmation No. 4340

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RESPONSE AND REQUEST FOR RECONSIDERATION

The Honorable Commissioner of
Patents and Trademarks
P.O. Box 1450
Alexandria, VA 22313-1450
U.S.A.

Sir:

This is a response to the Office action mailed May 17, 2005 in which claims 1-5, 7-13 and 15-18 were rejected under 35 U.S.C. 102(b) as anticipated by US 5,712,882 (Miller) and claims 6 and 14 were objected to as being dependent upon a rejected base claim.

The Office action makes no mention of the fact that claims 1 to 17 were previously allowed, i.e., in the Office action mailed July 15, 2004 and does not withdraw those claims from allowance. The examiner who allowed those claims took US 5,712,882 (Miller) into account, as evidenced by the copy of the applicants' Information Disclosure Statement, bearing the examiner's initials, that was enclosed with the Office action. The rejection of claims 1-5, 7-13 and 15-17 in the present Office action is not based upon new prior art. (M.P.E.P. 706.04).

The statement, in paragraph 4 of the present Office action, that "Applicant's arguments with respect to claims 1-18 have been considered but are moot...", suggests that the present examiner overlooked that fact that the applicants' arguments were in respect of claim 18 only, and that the other claims had been allowed. Accordingly, the current rejection of any of claims 1-5, 7-13 and 15-17 would seem to be improper.

Notwithstanding that, with a view to expediting allowance of the application without undue delay, the rejection of claims 1-5, 7-13 and 15-17 in the present Office action will be treated on its merits.

Although the examiner stated that claims 6 and 14 would be allowable if rewritten in independent form, neither claim has been rewritten because the rejection of claims 1-5, 7-13 and 15-18 is respectfully traversed on the grounds that the examiner has erred in her interpretation of those claims and US 5,712,882 (Miller).

US 5,712,882 was not only cited by the present applicants in their Information Disclosure Statement but also discussed in the following passage on page 2, lines 17 to 30 of the present application:

"US patent No. 5,361,277 issued to Grover on November 1, 1994, discloses a further approach for providing clocking signals to a plurality of distant nodes, in which pulses are propagated along a single "open-terminated" conductor which passes every node. The pulses reflect at the open termination and the clock signal pulses are generated in dependence upon the arrival time at a node of a pulse and a "return" pulse. US patent No. 5,734,685 (Bedell) issued March 31, 1998 discloses a similar arrangement but with an extra "data" line. US patent No. 5,712,882 (Miller) issued January 27, 1998 also discloses a similar arrangement, but with an additional "data" line and a "mirror image" of the circuit.

In each of these clock synchronization arrangements, *the pulses cannot be delivered at an interval shorter than the round-trip propagation delay of the transmission lines*. Moreover, the arrangements cannot correct for any possible speeding-up or slowing-down in segments of the transmission line due to thermal variations, dielectric variations or other factors which can change propagation velocity within the medium." (*emphasis added*)

Claim 1 of record distinguishes from US 5,712,882 (Miller) in several ways. The clocking system set out in present claim 1 generates two *trains* of pulses and propagates them in opposite directions around the two propagation paths. As specified in clause (iii), the second train of pulses are propagated around the plurality of slave nodes via the second propagation channel *such that the pulses of the second train of pulses arrive at respective ones of the plurality of slave nodes in reverse order to the pulses of the first pulse train*. Furthermore, as specified in clause (iv), the rate of each of the first and second pulse trains is maintained such that *there are "pN" pulses in each propagation channel at any time*, where "N" is the number of nodes, including the master node, and "p" is an integer. In addition, clause (iv) specifies that the pulses of the first train of pulses *arrive at respective ones of the plurality of slave nodes substantially simultaneously*, and the pulses of the second train of pulses *arrive at respective ones of the plurality of slave nodes substantially simultaneously*.

In fact, it is preferable for embodiments of the invention to use pulse trains having even more pulses than the number of nodes in each propagation path, i.e., it is preferable for the integer "p" to be 2, 3, 4 or more. For example, if there are 8-nodes, "pN" may equal 4*8=32 pulses going around each propagation path at the same time.

US 5,712,882 (Miller) does not disclose such a *train* of "pN" pulses carried by each of the counter-propagating paths at a given time. Miller clearly states, in column 4, line 17, that "The period of the CLK signal is suitably longer than the time required for a CLKA or CLKB pulse to travel via transmission line 18 or 20 to the most remote deskewing circuit 16". This means that *only*

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one pulse propagates in each propagation path at any given time. Each pulse must traverse the entire propagation path before another pulse can be issued.

Hence, claim 1 is not anticipated by US 5,712,882 (Miller).

Claims 1 to 5 are dependent upon claim 1 and so include all of its features. It follows that claim 1 to 5 also are not anticipated either.

Claim 7 is the apparatus equivalent of claim 1 and so is not anticipated by US 5,712,882 (Miller) for the same reasons. Claims 8 to 13 and 15 to 17 are dependent upon claim 7 and so include all of its features. It follows that claims 8 to 13 and 15 to 17 are not anticipated by US 5,712,882 (Miller).

Notwithstanding the foregoing reasons for lack of anticipation of claims 2 to 5 and 8 to 17, it is noted that claims 2 and 8 specify that the adjustable delays (pre- and post-) are *in the propagation channels*. Miller's adjustable delays are in *branches off* the propagation channels. It is noted also that each of the delays D1 to D5 in Miller's FIG. 2 is not an adjustable delay but rather "the inherent delay of transmission line 18..." (Col. 4, lines 64, 65).

Claim 18 is not anticipated by US 5,712,882 for similar reasons.

Accordingly, it is submitted that all of the claims of record are patentable over the disclosure of US 5,712,882 (Miller).

In view of the foregoing, favourable reconsideration and early allowance of the present application are respectfully requested.

If the examiner has any further concerns, she is invited to call the undersigned at 613 254 9111.

Respectfully submitted,

12th Aug. '05
 Date


 Thomas Adams, Reg. No. 31,078

Adams Patent & Trademark Agency
 Box 11100, Station H
 Ottawa, Ontario
 Canada K2H 7T8
 Tel: (613) 254-9111
 Fax: (613) 254-9222
 Docket No. AP566US

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 I hereby certify that this correspondence is being facsimile transmitted to the Patent and Trademark Office, Fax No. (571) 273-8300, on the date shown below.

12th Aug. '05
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 Thomas Adams, Reg. No. 31,078